

Demand Side Plan

The Goal and Executive Action

During the summer of 2000, it became apparent that California's electricity supply system was encountering serious difficulties. Sudden increases in the wholesale price of power, and isolated supply shortfalls during the summer gave way to constrained supplies and rolling blackouts in several areas of the state when winter arrived. In response to the rapidly worsening situation Governor Davis set an initial goal for reducing California's peak demand for the summer of 2001 by 5,000 megawatts.

California's conservation campaign, led by Governor Davis, far exceeded the initial goal and the plague of rolling blackouts that energy industry observers predicted for the summer of 2001 never materialized. By June 2001, the state actually achieved 5,570 megawatts of demand reduction with an additional 3,200 megawatts of reduction available by voluntary curtailments when necessary. This campaign contributed to a 6.7 percent reduction in overall electricity consumption in the state, and a 10 percent reduction during summer peak hours reaching a record reduction of 14 percent in June 2001. This remarkable accomplishment reflects the most aggressive and comprehensive energy conservation and efficiency effort in the history of our state. This report details how that goal was met and surpassed.

“NERC's best estimate is that there will be about 260 hours of rolling blackouts.”

—National Electric Reliability Council.

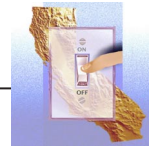
May 2001

During the summer of 2000, responding to the escalating difficulties facing the state, the governor took quick steps to enhance electricity supply. He directed efforts to bring rapid, voluntary reductions in the demand for electricity, and provided incentives for equipment that would reduce load. Their focus included efforts to reduce demand during the summer peak period and programs to provide long-term energy savings.

In September 2000, the governor signed into law Assembly Bill 970 as a first step to achieve the 5,000 megawatt goal. This legislation allocated \$90 million toward load reduction programs targeting the summer of 2001. The legislation also directed the Energy Commission to tighten building and appliance energy efficiency standards.

Even before the action was complete, the California Public Utilities Commission at Governor Davis' request, re-targeted some utility efficiency programs being funded through the Public Goods Charge. Funds remaining from previous years' allocations were directed into efforts to reduce peak electricity demand. The Public Utilities Commission allocated \$72 million for this effort.

In response to multiple Stage 2 and Stage 3 electricity emergencies and rolling blackouts occurring within the state, the governor called a special legislative session during which additional legislation to fund peak load reduction efforts was passed. The



governor signed Senate Bill X1 5 and Assembly Bill X1 29, which the Legislature passed during the first extraordinary session of 2001. As chaptered, these bills were one of the centerpieces of the governor's conservation program. They provided an additional \$859 million for demand reducing and energy saving program efforts for the end of the summer of 2001 and all the summer of 2002. The governor also launched the "Flex Your Power" campaign which included paid media and an organizational effort that reached state employees, local governments, businesses, and non-profit organizations throughout the state.

Components of the Effort

*Rolling blackouts
will be "in the
hundreds of hours.
I expect
Californians will
grow pretty weary
of them pretty
quickly".*

—Cambridge Energy
Research
Associates.

May 2001

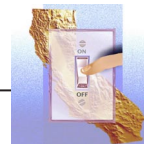
The Davis Administration set in motion a broad-ranging effort to reduce peak electricity demand in the summer of 2001. This effort included actions to encourage voluntary load reduction by customers and to promote incentive programs for demand reducing technologies, energy efficient construction technique and the installation of energy efficient equipment. To ensure long-term energy efficiency, this effort included accelerating tighter building efficiency standards.

The major initiatives that Governor Davis pursued, with the support of the Legislature, were progressive and intended to produce swift results.

The messages and motivations for Californians to conserve were powerful. This included the 20/20 program, which provided 20 percent rebates on energy costs during summer months to customers of investor owned utilities who reduced their usage 20 percent or more. Additionally, the Public Utilities Commission ordered "conservation rates" whereby those who used large amounts of energy paid higher utility rates. The fear and potential consequences of blackouts, higher energy bills and civic mindedness also contributed to what were record conservation impacts. Going into the summer, many Californians were already conserving. However, more effort was necessary to make the public aware of further actions they could take to get California through the energy crunch. Many experts doubted that conservation alone could make the key difference when Governor Davis initiated a comprehensive and multi-faceted summer energy conservation and efficiency campaign.

Incentive Programs: The governor, with the support of the Legislature, directed the Public Utilities Commission and Energy Commission to pursue incentive programs to address the energy supply and cost challenge. These programs included peak demand reduction by controlling building loads as well as incentives to improve the efficiency of appliances, equipment, and buildings.

Energy Conservation Media and Education Campaign: The effort included programs which informed the public of the problem being faced and encouraged businesses and citizens to reduce peak demand and energy usage. The governor also directed the Department of Consumer Affairs to conduct a statewide media awareness campaign to inform the public on the importance of, and methods to, reduce energy consumption and resulting savings. This "flex your power" effort included use of non-



“Californians continue to save electricity during peak hours when we need it the most. The efforts that individuals and businesses took to save electricity were instrumental in helping California avoid rolling blackouts this summer.”

— **Gray Davis, Governor**
Press Release
October 4, 2001

traditional mass media, a toll-free phone line with information available in seven languages, direct mail and the distribution of collateral materials in several languages as well as coordination with community and consumer groups. Governor Davis' executive orders and media efforts got the peak demand reduction message out to the public. Also, fourth through sixth grade students throughout the state took part in a one day class on energy savings and learned how to conduct a simple energy audit of their homes.

Voluntary Efforts: The governor called on media, businesses and government agencies to assist in educating the public about the need and means of saving energy. Business organizations and companies across the state developed a “Declaration of Action” to voluntarily cut lighting by 25 percent, raise room temperatures to 78 degrees where possible, and commit to cut energy use for the summer months by 20 percent. Local governments and special districts made a similar pledge to cut 15 percent through many of the same actions, and non-profit organizations across the state committed to save 20 percent and to educate their members and the public they serve.

State agencies individually used thousands of daily contacts with citizens and businesses to spread information about energy efficiency and peak load reduction. Agencies have placed energy saving messages on state websites, lottery tickets, mailings to professional licensees, car registration and drivers license renewal materials, and newsletters ultimately reaching millions of residents. Businesses, local governments and non-profits were asked to do the same and responded in impressive fashion. The California Conservation Corps walked low-income neighborhoods all summer spreading the energy conservation message.

Governor Davis spearheaded development of business partnerships to reduce peak load and electricity use. The Building Owners and Managers Association participated, working with building owners and janitorial services to reduce energy use in buildings. Grocery stores throughout the state handed out more than 14 million energy conservation messages, as did nearly 700 appliance retailers.

20/20 Program: Governor Davis called on the Department of Water Resources and the Public Utilities Commission to implement a program rewarding electric ratepayers who significantly reduced their use during the summer 2001. This became the 20/20 program, providing 20 percent rebates on energy costs during summer months to customers of investor owned utilities who reduced their usage 20 percent or more.

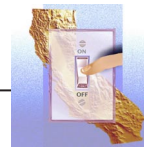
Building Efficiency Improvements: The campaign included weatherization of low income housing to reduce electricity demand and assist low income Californians with spiraling energy costs. The California Conservation Corps distributed compact fluorescent lamps to low income households. The effort also included an accelerated schedule for implementing more stringent Title 24 standards included in the California Building Code.

State Facility Efficiency Improvements: Governor Davis also emphasized efforts to improve the energy efficiency of state buildings, and those of state colleges and universities. The Department of General Services conducted audits of state buildings, identifying voluntary and effective steps that could be taken to reduce each building's peak period electricity demand. By June, the state's largest office buildings had achieved an astonishing 26 percent energy savings. The University of California and the State University system undertook demand reducing measures as well.

“Although cool weather has been cited by some, June, August, and September were actually above normal temperatures, and July was normal.”

— **E SOURCE**
Strategic Marketing and Research
CA EE Residential Market Research Study, January 2002

Data from the National Climatic Data Center



Historical Foundation for Conservation

A number of state agencies and utilities had already laid the foundation for much of the work needed to start resolving the many energy issues confronting California.

THE RAND CORPORATION REPORT

The demand reduction programs were implemented to help California during its electricity challenge. This is not the first time that California has captured benefits from energy efficiency programs.

In May 2000, the Rand Corporation submitted a report to the Energy Commission, "The Public Benefit of California's Investments in Energy Efficiency." In this work, Rand evaluated the impact on California's economy of improved energy efficiency. The authors concluded, in part:

"... we ... find that improvements in energy efficiency lead to:

A benefit to the state economy since 1977 that ranges from \$875 per capita to \$1300 per capita in 1998 dollars.

Approximately 40 percent lower air pollution emissions from stationary sources.

A reduced energy burden on low-income households." (pg. xiii)

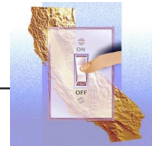
The **California Public Utilities Commission** has been operating a comprehensive set of energy efficiency and low-income programs funded at over \$300 million per year through the legislated Public Goods Charge (PGC). These programs have been delivered through California's investor-owned utilities, reliably saving an additional 200 megawatts per year every year. The programs included residential, nonresidential, new construction, and low-income assistance.

In August 2000, the Public Utilities Commission created the "Summer Initiative" which solicited innovative ideas from energy efficiency providers to create additional energy and peak demand savings by the summer of 2001. These initiatives were also administered through the investor-owned utilities.

The **California Energy Commission** has been responsible for the residential and non-residential Building Efficiency Standards since the 1970s. In the intervening years, the Commission has worked on three-year cycles to improve and upgrade them. After adopting the 1998 standards, the **California Energy Commission** decided to initiate a review to consider comprehensive additional efficiency improvements.

Because of the large scope of these changes, the Energy Commission passed over updating the 2002 efficiency standards, and focused on more substantive changes to go into effect in 2005. This plan, however, was interrupted by the passage of Assembly Bill 970 that required the Commission to adopt an emergency update of the standards to respond to California's electricity crisis.

In the mid 1970s, the **California Energy Commission** also adopted standards for appliances that use a significant amount of energy. In subsequent years, the Energy Commission upgraded these standards and expanded the type of appliances to include lighting, small commercial air conditioning equipment, and space heating, cooling, and water heating equipment.



Peak Impacts of DSM Programs and Standards

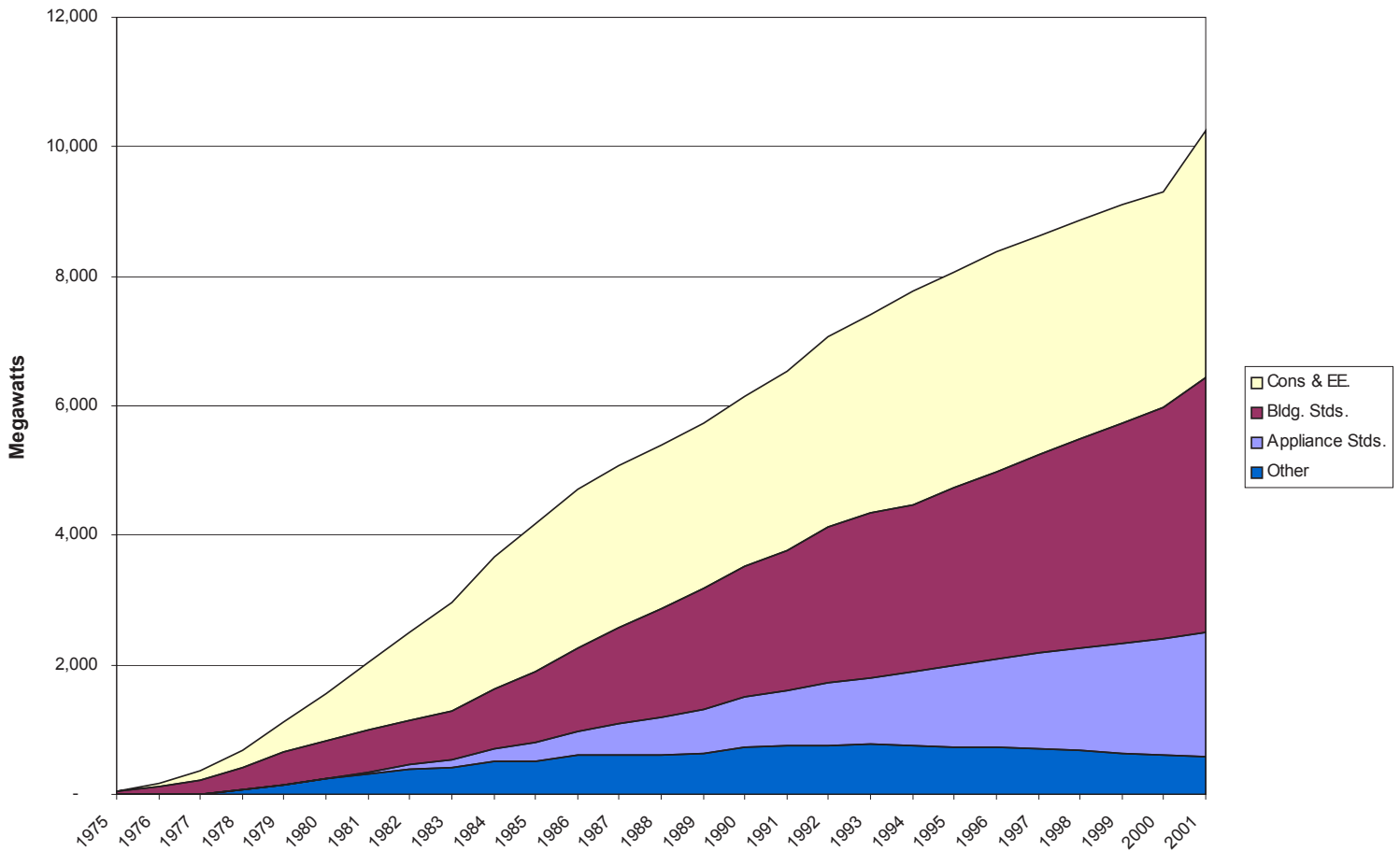
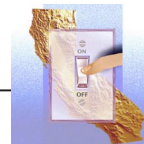


Figure 1

Energy efficiency standards and programs have been saving energy since 1975.



Allocation of Responsibilities

The challenges facing the state were severe. As a result, Governor Davis' peak demand reduction program involved the coordination of an unusually broad array of agencies for program delivery.

California Public Utilities Commission

Power Rebate Generates Shockingly High Interest

"In another sign that energy conservation is paying off, hundreds of thousands of consumers are opening power bills this month to find that they have earned a 20 percent rebate from the state for slashing summer electricity use.

What's more, preliminary figures compiled by utility companies indicate that many more households and businesses are qualifying for the automatic cash credit than Governor Gray Davis and his energy team had anticipated."

***— San Jose Mercury News
July 13, 2001***

In 2001, Governor Davis, with the support of the Legislature, gave the Public Utilities Commission the task of administering still more consumer incentive and low-income assistance programs beyond those summarized above. In addition to residential/low-income programs, the Public Utilities Commission also expanded rebates for small and medium commercial customers.

Prior to the Summer Initiative, the Public Utilities Commission was overseeing energy efficiency and low-income programs that were administered exclusively by the investor-owned utilities. Beginning with the Summer Initiative programs, the Public Utilities Commission expanded the number of entities administering programs and provided opportunities for a diverse set of participants, capable of delivering energy efficiency and peak demand savings quickly. When the governor authorized additional funds for energy efficiency and low-income programs this year, the Public Utilities Commission took advantage of existing networks to augment funding for many existing and successful programs. In addition, the Public Utilities Commission funded a number of non-utility pilot programs to test new approaches to delivering energy efficiency programs for the future.

The Public Utilities Commission now oversees a broad and comprehensive mix of programs targeting low-income, residential, commercial, industrial, and agricultural customers. These programs are being delivered by both investor-owned utility and non-utility entities including local governments and contractors.

Finally, at the governor's request, the Public Utilities Commission adopted and implemented a conservation-oriented, five-tiered rate structure. This new rate structure protected low-income residential customers and other residential customers whose usage stayed within 130 percent of their baseline usage amount from any rate increase. However, for customers who use large amounts of electricity, rates did increase. For instance, although rates for residential "baseline" usage did not increase, rates for the final block of electricity purchased by large residential users increased by 71 percent in the Southern California Edison service territory. This price increase was undoubtedly a significant factor in reduced demand for electricity.

Table 1 – the Public Utilities Commission's programs contributed nearly 240 megawatts to the savings by October 1, 2001.

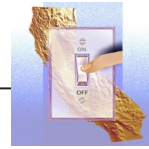


Table 1

New Funding - PUC Programs

<u>Measure</u>	<u>Cost (\$Mil)</u>	<u>Summer 2001 MW Goal</u>	<u>MW Saved 10/1/01</u>
Summer Peak Initiative	\$67.0	67	124
Appliance Rebates	\$50.0	61	61
Oil and Gas Pumping	\$12.0	16	3
Commercial Lighting Retrofits	\$35.0	44	39
Low-Income Weatherization and Appliance Rebates	\$45.0	8	11
	<u>\$209.0</u>	<u>196</u>	<u>238</u>

California Energy Commission



Energy Efficient Windows

Under Assembly Bill 970, the Energy Commission was responsible for accelerating revisions to the Building and Appliance Efficiency Standards and implementing a variety of new incentive programs to reduce peak demand. Senate Bill 1X 5 and Assembly Bill 1X 29 expanded some of those new programs and added new program responsibilities. In addition, the Energy Commission served in a technical advisory role for the governor, legislators, and many other state agencies involved in solving the peak load problem.

Last year, under the governor's direction, the most rigorous energy efficiency building standards in the U.S. were developed and approved by the Energy Commission in an accelerated process, taking just 119 days instead of the normal three years. The success of this effort was due in part to preliminary analyses and groundwork already well underway before the energy emergency began. The building standards, which are responsive to peak load, include measures to reduce leaks in air conditioning and heating ducts and reduce the amount of solar heat that radiates into buildings through windows and attics. The new standards are mandatory for all new construction and will save 200 additional megawatts of power usage a year and thus up to 1,000 megawatts a year five years from now. The building standards were adopted by the Energy Commission in January 2001 and went into effect on June 1, 2001.

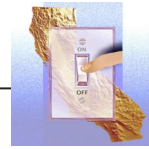
A corresponding update to the Appliance Efficiency Standards was adopted by the Energy Commission on February 6, 2002.

The Energy Commission used a variety of administrative models to implement the peak demand reduction incentive programs. Taking advantage of relief from some state administrative requirements, the Commission used a mix of staff- and contractor-directed efforts. The Commission evaluated incentives offered for peak reduction by other agencies, and set an average cost-effectiveness target of \$250 per kilowatt of peak demand reduction, for a period of at least four years.

Through the use of contractors, the Commission was able to "leverage" its staff resources to administer more program activity than staff could manage on its own. In



LED Traffic Lights (on the left) are more energy efficient than the old type of lights.



Real Time Meters



The Cool Roofs Program



Landfill Gas



600 gallons of ice storage used to shift peak electrical loads to off-peak period.

particular, the Commission opened its programs up to “aggregators,” who contracted to organize groups by using incentives to reduce peak demand.

Acting on the governor’s directives, the Energy Commission created initiatives that included tightly defined programs, such as installation of real-time meters, heat reflective commercial roofing materials and building load control systems. Under the governor’s direction, with the support of the Legislature, the Energy Commission offered an array of programs specific to the agricultural industry to reduce energy use and peak load demand. Other initiatives, such as the “innovative” program, accepted a broader range of demand-reducing options. In this case, the program guidelines permitted applicants greater flexibility in ways of achieving peak savings. The Energy Commission then reviewed and funded a wide variety of projects to reduce peak load.

The Energy Commission also funded activities in other agencies. These included the Department of General Services’ project to audit 175 state buildings and then develop load reduction and conservation plans for those buildings.

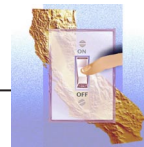
The Energy Commission also provided funds to municipal utilities. Those utilities, in turn, were responsible for operating programs similar to the investor-owned utility efforts funded through the Public Utilities Commission.

Table 2 – the Commission’s Peak Load Reduction programs contributed an additional 454 megawatt reduction by October 1, 2001.

Table 2

New Funding - CEC Programs

<u>Measure</u>	<u>Cost (\$Mil)</u>	<u>Summer 2001 MW Goal</u>	<u>MW Saved 10/1/01</u>
LED Traffic Signals	\$10.0	6	6
Innovative Programs	\$48.0	122	34
Demand Responsive Buildings	\$48.0	185	185
Cool Roofs	\$23.9	40	2
State Bldgs. And Public Univ.	\$5.5	50	59
Water/Wastewater	\$16.3	45	49
Municipal Utilities	\$40.0	35	54
Agriculture	\$87.1	22	33
Local Government Loans	\$49.5	20	1
Real Time Meters	\$34.0	500	31
	\$362.3	1,025	454



SCE Reports Unprecedented Response To Home Energy-Efficiency Rebates

ROSEMEAD, Calif., Dec. 20, 2001 /PRNewswire/ -- Southern California Edison (SCE) announced today that its customers have responded in unprecedented numbers to the utility's 2001 home energy-efficiency rebate programs.

"Interest in this year's cash incentives for upgrading to more efficient household devices has exceeded anything we have seen in previous years," said Lynda Ziegler, SCE's director of customer programs and services.

As of Nov. 30, SCE had issued 70,600 rebate checks to its residential customers totaling over \$8.8 million, compared to a total of 14,000 rebates paid in 2000. The rebates have helped homeowners purchase more efficient central and room air conditions, whole house fans, programmable thermostats and refrigerators and to upgrade home insulation and windows.

"We recently received the one millionth customer phone call so far this year asking about our energy-efficiency programs," said John Nall, SCE's manager of residential rebate programs. "That is five times the number of inquiries we received last year."

California State and Consumer Services Agency

Governor Davis directed the State and Consumer Services Agency (SCSA) to coordinate a variety of programs that significantly reduced state building load and encouraged statewide conservation, including:

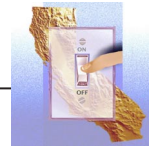
- Leading by example by reducing electricity use in state buildings by 20 percent;
- Issuing a blueprint for ensuring long term energy efficiency and sustainability in state facilities;
- Coordinating the statewide "Flex Your Power" campaign, which encouraged everyone from CEOs to school children to conserve; and
- Supporting conservation efforts by students and teachers.

Under SCSA's guidance, the Department of General Services (DGS) developed aggressive energy conservation protocols for state facilities, including reducing lighting loads, adjusting thermostats, and reducing use of non-essential office equipment. As a result, state buildings decreased their electricity use on average by 20 percent when compared with the previous year, including a 26 percent reduction in June. DGS trained building facilities staff, building engineers, and maintenance personnel to help them maximize energy conservation, and set up an ongoing monitoring and accountability process. State employees also were encouraged to participate in energy saving actions through a continuous outreach campaign.

To ensure long-term efficiency, permanent retrofits of hundreds of state facilities is also underway, with the ultimate goal of saving an additional 100 MW. Senate Bill X1 5 appropriated \$40 million to General Services to retrofit state buildings and facilities for energy efficiency – part of a larger efficiency effort, which uses energy efficiency revenue bonds and capital outlay funds to improve energy efficiency in state buildings. Assembly Bill 970 funded an additional \$5.5 million administered through the Energy Commission for the completion of 175 energy audits, installation of building demand response systems, and establishment of energy emergency load shedding response plans in specific buildings.

The governor also asked the State and Consumer Services Agency to lead the Sustainable Building Task Force, which developed a strategy for incorporating energy efficient, sustainable practices into the nearly \$3 billion in annual state building construction projects. This strategy is set forth in *Building Better Buildings: A Blueprint for Sustainable State Facilities*. The task force has played an instrumental role in developing a number of state building projects, including the Capitol East End Complex, which exceeds building efficiency standards by more than 30 percent and will save an estimated \$429,000 in electricity costs annually.

In addition, the State and Consumer Services Agency administered the "Flex Your Power" website and coordinated many of the educational and voluntary programs mentioned above to encourage conservation and efficiency. This statewide "Flex Your Power" campaign has initiated conservation partnerships with more than 1,000 businesses and non-profits, which committed to reducing consumption by 20 percent; hundreds of local governments, which adopted resolutions committing to a 15 percent reduction; and private organizations such as the Building Owners and Managers Association, which worked to reduce energy use in 300 million square feet of commercial real estate. The campaign also has coordinated events that encouraged consumers to purchase Energy Star certified appliances and products and worked with the California Grocers Association to disseminate energy information through thousands of grocery and convenience stores.



SCSA also was responsible for the Energy Conservation Activity Kits for students in 4th through 6th grades. The kits included an in-class curriculum and a homework assignment for children to perform walk-through audits of their homes. Other education initiatives include grants to about 200 teachers to support energy-related class projects, as well as funding for schools, local governments, nonprofit, and private organizations to teach energy conservation to students statewide.

California Department of Consumer Affairs

Governor Davis made the Department of Consumer Affairs responsible for administering the statewide multimillion dollar "Flex Your Power" media campaign. The campaign provided television, radio and print advertisements in six languages. The messages focused on reducing lighting loads, adjusting thermostats and shifting electrical appliance use to non-peak hours. This campaign also supported and advertised the 20/20 rebate program. In addition, toll free phone lines were established so that consumers could call 1-866-YOUR-PWR (968-7797) for energy conservation and efficiency information.

The Department of Consumer Affairs' statewide public information program included coordination with community groups, the Department of Aging, and other state agencies. These efforts appear to have had a widespread and profound impact on the public's decisions regarding electricity use. Voluntary actions by California citizens in both residential and business settings reduced their peak demand by 2,616 megawatts by October 1, 2001. The Department of Consumers Affairs and the Energy Commission are conducting research to determine the impact of specific programs on individuals' decisions and how well these effects will endure.

California Conservation Corps

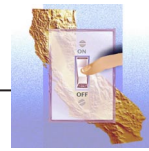


Governor Davis called on the California Conservation Corps to organize its "Mobile Efficiency Brigade," to make inroads into neighborhoods. Comprised of members of the Corps, the "Brigade" visited a large number of working class neighborhoods throughout the state. During a 17 week campaign, they provided nearly 1.8 million compact fluorescent lamps to residents, along with efficiency and energy conservation information.

The Conservation Corps' Efficiency Brigade completed its work by August 1, 2001. The compact fluorescent lamps that they distributed should provide over 40 megawatts of peak demand savings. The information and educational materials that families received from the personal contact with Brigade members have also contributed to additional energy use reduction.



The Conservation Corps' Mobile Efficiency Brigade in action door to door.



California Department of Water Resources

The Department of Water Resources is now purchasing some wholesale electricity for California's investor-owned utilities to help meet total statewide demand. As part of the effort to reduce demand, Water Resources oversaw the "20/20" Program, which offered ratepayers in investor-owned utility service territories the opportunity for a 20 percent rebate on the energy cost portion of their electricity bills.

The Department relied on the investor-owned electric utilities to administer the "20/20" Program and the Public Utilities Commission to ensure customers were treated fairly.

Over 30 percent of investor-owned utility customers reduced their electricity usage by at least 20 percent, to receive a discount on their energy costs. This figure far exceeded the "20/20" Program participation that state decision-makers expected.

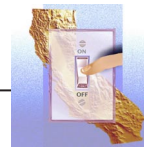
New Funding for Demand Reduction

Table 3

New Funding - Other Agency Programs

<u>Measure</u>	<u>Cost (\$Mil)</u>	Summer	MW
		<u>2001 MW Goal</u>	<u>Saved* 10/1/01</u>
Public Awareness, 20/20, Rates, etc.	\$50.0	2,000	2,616
Classroom Outreach	\$7.0	NA	NA
Other Low Income	\$220.0	NA	NA
Renewable Projects	\$99.5	10	0
State Energy Projects.	\$35.0	30	38
Mobile Efficiency Brigade	\$40.0	10	40
State, Fed. & Local. Govt. Response	?	658	658
AC Cycling	?	300	300
ISO/CPUC Demand/Curtailment	?	735	735
CPUC Interruptible Tariff Program	?	1,280	1,280
	\$451.5	5,023	5,667

*Demand responsive and interruptible savings were available, but not fully called upon due to the lack of electricity emergencies during the summer of 2001.



Impact Summary

When decision-makers, under Governor Davis' direction, were developing plans to reduce energy use in California to meet the challenges of summer 2001, they anticipated reducing demand by 5,000 megawatts. This, in itself, represented a monumental statewide multi-agency undertaking. The impacts of all of these efforts were far greater than expectations. As of October 1, 2001, the impact of all efforts was 6,359 megawatts. The combined savings of demand responsive and rebate/incentive programs was 3,743 megawatts and voluntary conservation savings added another 2,616 megawatts. In addition, the campaign includes 200 more megawatts expected in 2002 from the updated building efficiency standards.

A number of the rebate and other programs continued to accrue savings after October 1, and will be continuing to accept participants into next summer.

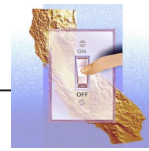
Californians Buying More Energy Efficient Products

Northern and Central California residents purchased nearly 150,000 energy-saving lamps, dishwashers, refrigerators and other qualifying appliances at over 420 retailers in PG&E's service area in 2001. Nearly 100,000 energy-efficient refrigerators and 4 million compact fluorescent light bulbs were purchased, with consumers cashing in on utility rebate offers. Refrigerator rebates ranged from \$75 to \$200 per unit, while instant rebates of \$3 each on compact fluorescent bulbs contributed to strong sales.

The \$17 million residential rebate program of PG&E had more participants than funds could accommodate this year for the first time in 15 years according to the utility. Through its 1-2-3 Cashback program, PG&E will issue rebates this year totaling more than \$13.7 million for more than 94,800 energy-efficient refrigerators. That's twice the number of refrigerator rebates projected by the utility this year, and 5.5 times higher than refrigerator rebates issued last year.

Excerpted from the San Francisco Chronicle, December 7, 2001

Jason B. Johnson, Staff Writer



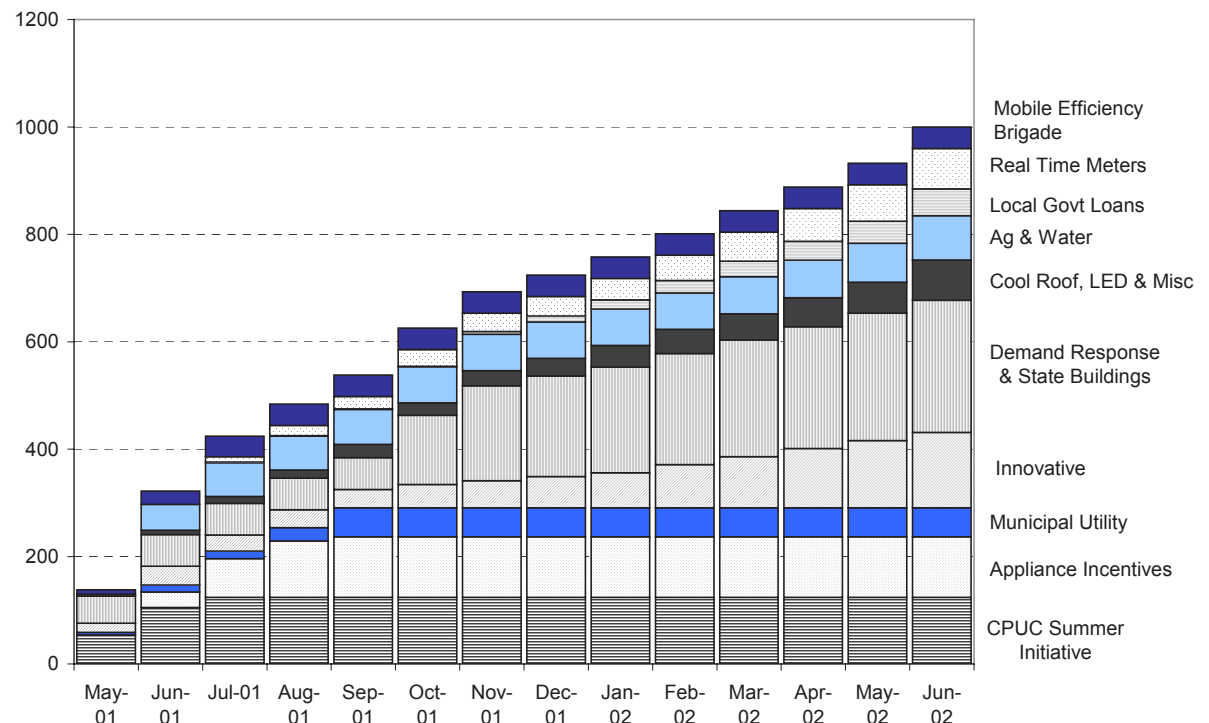
A Statewide Effort, Coordinating a Variety of Agencies

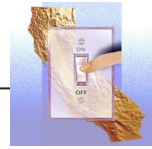
Through individual effort and coordination among agencies, the Davis Administration, working with local governments and the private and non-profit sectors, was able to achieve an unprecedented reduction in system peak loads.

The previous tables demonstrate the diverse organizations and programs that received resources to deal with the electricity challenge California faced. The following charts present the payoff of this effort. The chart below shows the impacts of different agency efforts, demonstrating the effectiveness of the course of actions that quickly marshalled the state's resources.

Figure 2 This figure represents program-specific impacts.

Peak Demand Reduction in California Program Detail (Megawatts)





Peak Demand Reduction in California Voluntary and Program (Megawatts)

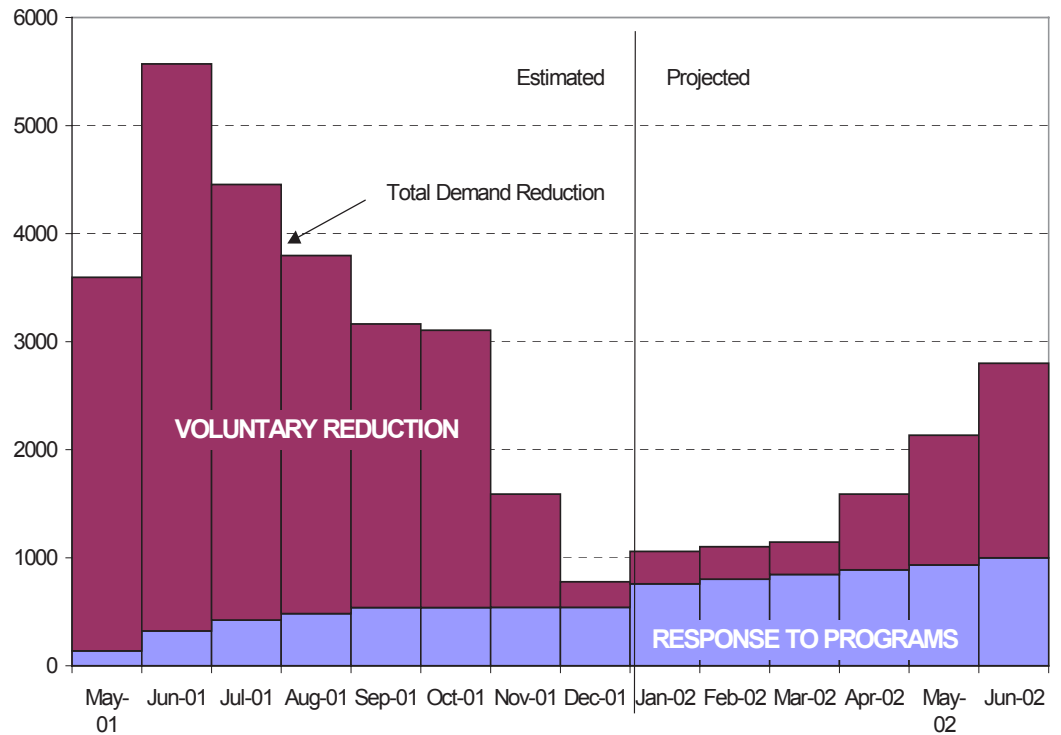
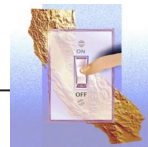


Figure 3

The voluntary peak demand reduction has been far greater than expected. These estimates take weather and economic growth into account.



Supply and Demand Worked Together

The overall success of California's effort to mitigate the cost and reliability impacts of electricity deregulation resulted not only from peak demand reduction programs, but efforts to increase electricity supply. Governor Davis, with the support of the Legislature, provided administrative flexibility and mechanisms to encourage increases in peak electricity supply. The Energy Commission worked diligently to respond to the need and capitalize on this flexibility.

Increasing the state's electricity supply through new power plants, modifying existing plants and repowering existing sites is a complex and capital intensive undertaking. The governor's actions in streamlining the regulatory aspects of these efforts enabled accelerated development and generation. As a result, by the summer of 2001, the state's peak period generating capacity had been increased by 2,537 megawatts. This was accomplished through a mix of increased output from existing generating plants and development of new generating sources.

Combining the increase in electricity supply with demand-side efforts, the state succeeded in increasing its peak "cushion" by 8,896 megawatts by October 1, 2001.

California's Economic Conditions

Both the Energy Commission and the Independent System Operator measure the demand reductions in 2001 as reductions in peak demand or overall consumption in a month in 2001 compared to the same month in 2000. For example, actual metered load in June 2001 was 3,834 megawatts lower than in June 2000.

Personal income in the second quarter of 2001 was 2 percent lower than in the first quarter of 2001. But even though economic activity was lower in recent months compared to earlier months in 2001, economic activity for the year was still higher than the previous year.

As with any data, California's total employment figures mask stories of both growth and decline. For example, there have been many press reports about layoffs at high-tech and dot-com companies. In addition, looking at California regions, employment growth is stronger in southern California than it is in northern California. Furthermore, employment growth in the services sector is offsetting job losses in the manufacturing sector. Even so, there was generally an increase in economic activity from 2000 to 2001 at the same time that electricity demand fell.

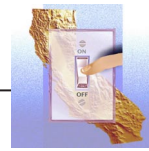
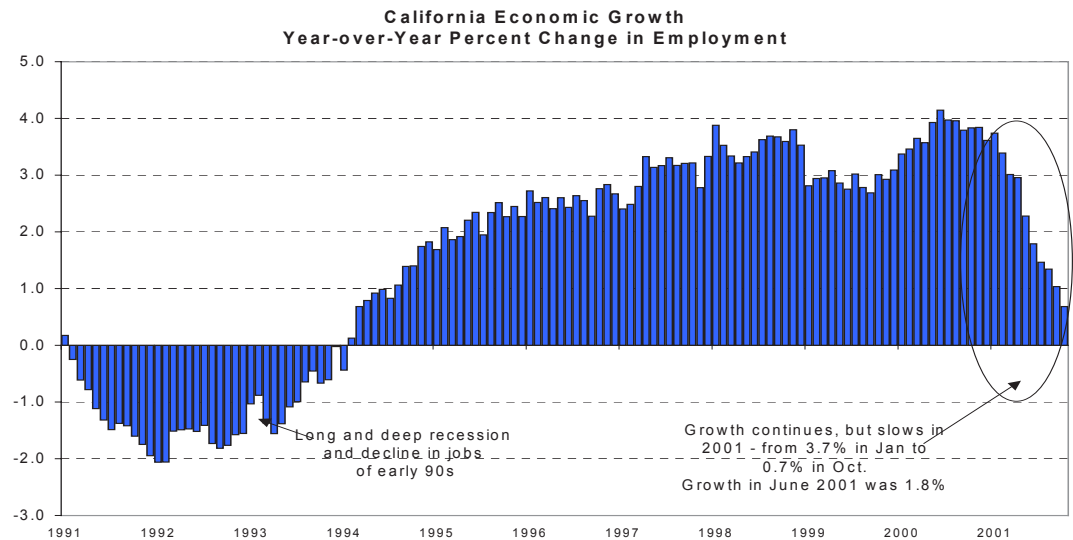


Figure 4

The Impact of Growth

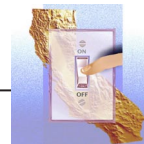
California's economy was still growing in 2001



California's Weather

Actual peak electricity demand in 2001 was substantially lower than the summer 2000 peak demand. There were 29 days during the summer of 2000 when demand in the California Independent System Operator's area exceeded 40,000 megawatts. There were only 6 of these high demand days during the summer of 2001.

The drop in peak demand from 2000 to 2001 was unrelated to weather. Summer temperatures in 2000 and 2001 were similar. Both summers were ranked as the 25th hottest in the previous 107 years. Looking specifically at heat waves, 2001 could even be considered hotter than 2000. There were 14 days in 2001 when the temperature in the Central Valley was 100°F or higher compared to 10 days in 2000.



Washington State University's Behavioral Study

During the past summer, California residential consumers significantly reduced their total electricity use, as well as their demand for electricity during peak hours. The Energy Commission is sponsoring research to determine (1) how these changes took place, (2) how likely they are to continue, and (3) what might be the most effective ways to encourage similar responses in the future. Prof. Loren Lutzenhiser of Washington State University is conducting the study in cooperation with the major California utilities. Data sources include:

- 1,862 recently completed statewide residential telephone surveys and related energy use data
- several hundred in-depth interviews that will be conducted early in 2002 with some of these same households to determine their potentials for future energy efficiency improvements and barriers to the purchase of new appliances, air conditioners, etc.
- a follow-up survey of all 1,862 households in the summer of 2002 to determine how persistent their conservation response has been and whether planned efficiency improvements were made.

Preliminary analyses are now being performed using data from 590 telephone surveys in the Southern California Edison territory. Comparative cross-utility studies will be available in 2002. Key findings for these households include:

- *What were the most common types of conservation action?* People reported doing a wide variety of things, including: turning off lights, appliances, pool pumps and hot tubs; increasing their air conditioner thermostat settings; not using air conditioning at all; purchasing new more efficient lights and appliances.
- *What were the most important motivations?* As expected, concerns about "keeping bills down" and "trying to avoid blackouts" were at the top of the list, but also noted were civic concerns for "doing our part," "stopping energy suppliers from over-charging," "environmental protection," and "using energy resources wisely." The motivations are complex and will likely turn out to be different for different consumer groups.
- *Did everyone conserve?* Preliminary findings suggest that the energy savings were the result of actions taken by about 70 percent of households, with about 30 percent responsible for the bulk of the electricity savings.
- *How do people feel about conserving?* In the Southern California Edison territory, over 70 percent said that the experience either had "no serious effect" on their lifestyle or "possibly improved" their quality of life. Most also said that they were likely to continue most of their conservation actions in the future.

"73% say that they are "very likely" to continue doing everything that they are doing now, assuming that the situation remains about the same.

— Washington State University study commissioned by the California Energy Commission

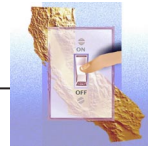
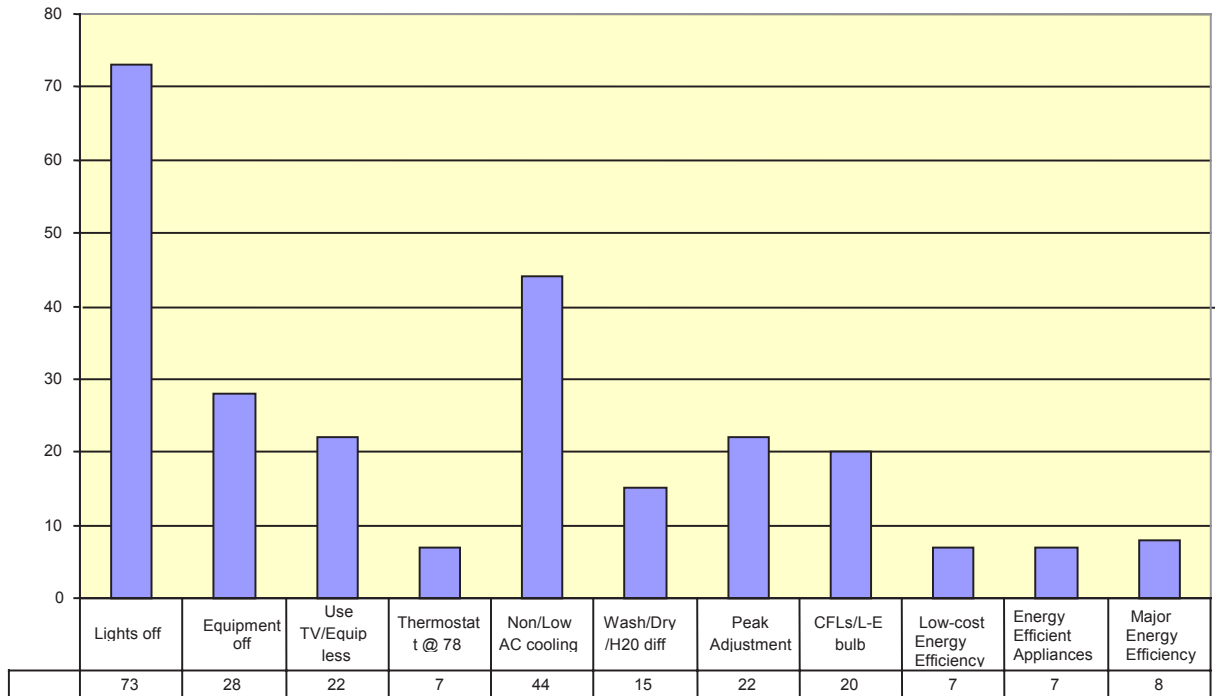
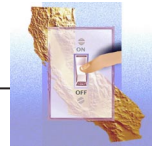


Figure 5

**Percent of Households Reporting Various Conservation Actions:
Southern California Edison Service Territory**

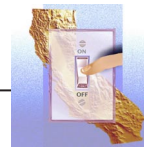




Conclusions

The Davis Administration faced a very difficult situation as it looked at the approaching summer of 2001 and saw the forecasts of repeated blackouts. The issue of potential electricity supply shortfalls was dealt with from both supply and demand directions.

Between the summer of 2000 and the summer of 2001, the Davis Administration put in motion the most aggressive and comprehensive energy conservation and efficiency effort in state history! This strategy succeeded. The state's combined campaign and the voluntary conservation efforts of California consumers contributed to a reduction of overall energy consumption in California by 6.7 percent and a 10 percent reduction during the summer peak hours reaching a record 14 percent reduction in June 2001.



The manufacturing of solar heating panels used for pools



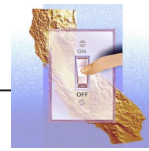
More efficient use of energy benefits both large and small manufacturing facilities.

Recommendations for Further Energy Conservation

While California enjoyed great success this year in reducing its electricity consumption, continued reductions are needed to reduce the chance of future electricity shortages and to benefit California's economy. California state agencies implemented the Peak Demand Reduction Program with remarkable speed. The success of the Demand Reduction Program depended on agencies fielding effective programs in time for significant impacts by June 2001. The demand reductions far exceeded expectations. The results demonstrated that State Government can make the administrative adjustments and take the program steps to respond quickly, when the situation requires. The state now has a golden opportunity to ensure that energy efficiency continues to play a key role in stabilizing the electricity delivery system in the years ahead. The State Government should continue to create and nurture energy efficiency programs designed to save customers money, improve the environment, reduce the need for building new transmission capacity and encourage innovation among the thousands of Californians who work to provide energy efficiency goods and services to the general public.

Future conservation efforts should actively promote achieving the most cost effective, energy efficient, gains possible by:

- Providing customers effective demand reduction programs to reward them for reducing peak demand during energy shortages especially in reliability constrained areas such as the San Francisco Peninsula
- Building on the aggressive public awareness campaigns to give consumers information on how to reduce peak demand
- Continuing electricity rates that focus on customers with the most to gain from energy efficiency improvements
- Providing feedback to consumers on the effect of their energy savings efforts on their monthly bills

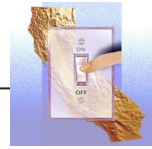


Solar power for homes

- Building on the efforts of this past summer, the state should develop resources to continue funding for programs that have drawn on the ingenuity of Californians. Public Utility Commission programs that are based on Public Goods Charge funding are assured for the immediate future. The Peak Load Reduction efficiency and demand responsive programs, established by AB970 and Senate Bill 1X 5, are not.
- Targeting additional efficiency efforts to regions where electricity generation and transmission constraints occur. These regions, which include the San Francisco Peninsula, suffer from lower electricity system reliability than the rest of the state. They are especially vulnerable to blackouts. This is the result of either distribution system constraints or limited local generating capacity. Focusing energy efficiency programs into these constrained areas will help ensure reliability.
- Encouraging neighboring states to conduct programs to reduce electricity demand and maintain a reliable electricity system. The balance of electricity supply and demand extends far beyond California's stateline. Oregon, Washington, Nevada, Arizona, Utah, Colorado, Idaho and Montana also depend upon western grid resources. California's broad conservation effort benefitted these states. They can also play a crucial role in reducing electricity loads by undertaking coordinated actions to reduce peak demand and energy use. Collective, multistate efforts are capable of transforming mutual interdependence on the western grid from a liability to an influential asset.

Future energy efficiency efforts should ensure that the interruptible program rulemaking of the Public Utilities Commission results in a system that:

- Preserves existing load curtailment capability funded by the State and the ISO
- Ensures achievement of the total demand responsive capability recommended by the Energy Commission for the summer 2002 by authorizing sufficient cost recovery for utilities
- Ensures effective participation in real-time metering systems by commercial and industrial customers
- Safeguards the energy efficiency building and appliance standards as one of the most cost-effective options for California to manage its electricity and natural gas demands
- Expands the Public Goods Charge program supporting the implementation of the Title 24 standards and assists builders in exceeding the standards
- Evaluates options for improving the efficiency of existing buildings, as called for in AB 549



Future energy efficiency work of the Energy Commission should:

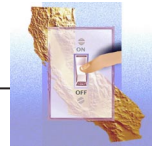
- Focus on ways to predict participation in various energy efficiency, conservation and load curtailment programs and determine the uppermost, cost-effective level of efficiency gains worth pursuing
- Strengthen the Title 24 Building Energy Efficiency Standards in each triennial code update
- Expand programs that help builders exceed the adopted standards

The Federal Government is responsible for the Energy Star Program and regulates the efficiency of air conditioners. States are preempted from enforcing air conditioner efficiency levels higher or different than what the Federal Department of Energy adopts. The Federal Government should:

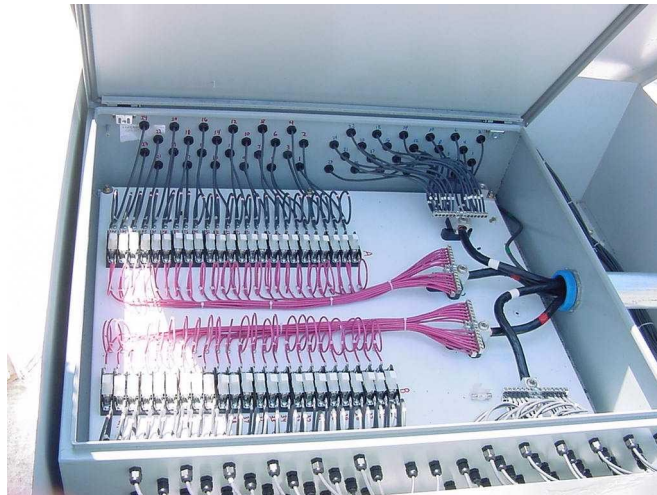
- Expand the Energy Star media campaign to encourage consumers to buy only Energy Star labeled products
- Adopt a two-part efficiency standard for air conditioners. Such a standard could be a SEER (appropriate for humid climates) for those states with warm humid summers, and an EER (appropriate for hot dry climates) for those states more like California and the rest of the Southwest

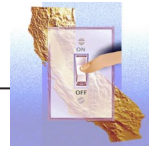
New Title 24 Building Standards will add greatly to future energy efficiency.





*County of Alameda, Santa Rita Jail
Photovoltaic Project funded under the Energy
Commission's Innovative Demand Reduction
Program and ECAA Loan Program. This
project has a capacity to produce 500 kW of
electric power using solar energy.*





Prepared under the direction of the **Governor's Conservation Team**

S. David Freeman, Chair

California Conservation Corps

www.ccc.ca.gov

California Department of Consumer Affairs

www.dca.ca.gov

California Energy Commission

<http://www.energy.ca.gov/>

California Power Authority

www.capowerauthority.ca.gov

California Public Utilities Commission

www.cpuc.ca.gov

California State and Consumer Services Agency

www.scsa.ca.gov

Department of Water Resources

www.dwr.water.ca.gov

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